

## CLAIMS

[ I claim: ]

- 5 Suba
1. A method of treating a gas stream containing an oxidant and carbon particles comprising the steps of:
    - a) introducing the gas stream into a processing chamber,
    - b) exposing the gas stream to microwave energy having a sufficient power and for a sufficient period of time to induce the carbon to react with the oxidant.
  - 10 2. The method of **claim 1** wherein the oxidant is selected from the group consisting of steam and carbon dioxide.
  - 21 3. The method of **claim 1** wherein the microwave energy is provided at a frequency between 500 MHz and 30 GHz.
  - 15 4. A gas processing chamber for treating a gas stream containing an oxidant and carbon particles comprising:
    - a) a gas inlet port for receiving the gas stream from a high temperature processing chamber,
    - b) a gas outlet port for exhausting the processed gas stream, and
    - c) a microwave source for introducing microwave energy into the gas processing chamber having a sufficient power to induce the carbon to react with the oxidant.
  - 20 5. The gas processing chamber of **claim 1** further comprising a microwave waveguide to direct the microwave energy at the gas stream for processing.
  - 25 6. The gas processing chamber of **claim 1** further comprising a reflected microwave power dump for protecting the microwave source from reflected microwave power.
  7. The gas processing chamber of **claim 1** further comprising a window seal to separate the gas stream from the microwave source.